



UNIVERSITY of  
**BRADFORD**

Faculty of Engineering  
& Informatics

# Faculty of Engineering and Informatics Newsletter

July 2020



# Welcome from the Dean

The Faculty coronavirus recovery planning has advanced considerably in the past few weeks, and we now had researchers from the Polymer IRC and BCSE on campus for a few weeks, and we are looking at facilitating the gradual return of other staff who need to return to campus for research during Phase 3.

We continue to evaluate the circumstances of each individual based on the principle that the health, safety and wellbeing of our staff and students is our top priority. An online training package is required to be completed by each staff member prior to returning to campus.

Stay safe and keep in touch!



## Newsletter summary:

1. Academic in profile
2. RKT News (grants applications, open calls, presentations and awards)
3. Staff and Students' news

## Bradford student satisfaction rises

The University of Bradford has bucked the national trend and improved its overall satisfaction score in the 2020 National Student Survey (NSS).

Our Faculty features in the list of Bradford's best performing courses for overall satisfaction, all scoring above 90%: are BEng Chemical Engineering (with Placement), BEng Civil and Structural Engineering (Full Time), BEng Mechanical Engineering (Full Time), and BEng Chemical Engineering (Full Time).

For more information visit: [www.bradford.ac.uk/news/archive/2020/bradford-student-satisfaction-rises.php](http://www.bradford.ac.uk/news/archive/2020/bradford-student-satisfaction-rises.php)



# Academic in profile:

## Prof Fun Hu



Professor Fun Hu, Professor of Wireless Communications Engineering since 2005, is the Head of Biomedical and Electronics Engineering department. She was awarded the Yorkshire Forward Chair in Wireless Communications in 2007 for her contributions in promoting and coordinating research and knowledge transfer activities in the communications and networks area in the region.

She is currently leading Bradford's contributions to two EU H2020 projects, COMET and SINAPSE, and also European Space Agency funded Satellite Network of Experts V (SatNex V). COMET and SINAPSE are funded under the Single European Sky ATM Research Joint Undertaking (SESAR JU) and Cleansky2 JU respectively. The objectives of these two projects are to advance aeronautical communications technologies, contributing towards the modernisation of the air traffic management (ATM) systems and the reduction of fuel burn and related CO2 emissions. SatNex V gathers over 20 universities with expertise in satellite communications across Europe to identify and assess promising terrestrial communication technology for spinning into the space telecom applications. Prof. Hu also led the Technology House development of the £13M BEIS funded cross-faculty Digital Health Enterprise Zone (DHEZ) programming during its inception. The programme objective is to support academic-healthcare-business collaboration to develop innovative digital solutions to healthcare challenges. Since started her academic career in 1992, Prof. Hu has received a considerable amount of funding support from UK funding councils, the EU, ESA, Innovate UK and industry, and contributed to more than 35 research projects, many of which are flagship projects. Much of her research activities have been conducted in collaboration with industries, universities and research organisations around the globe.

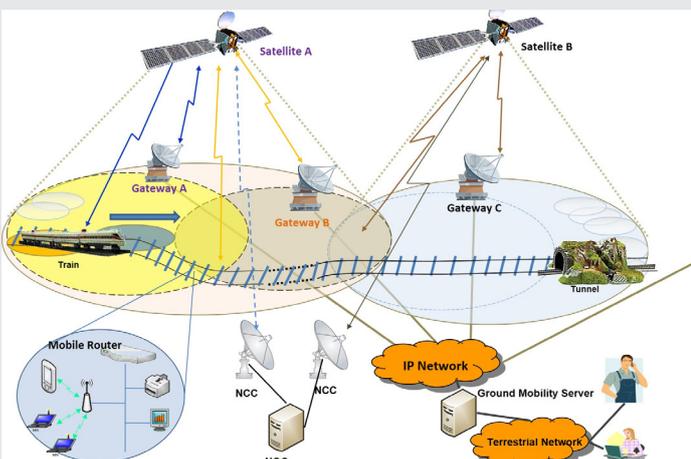
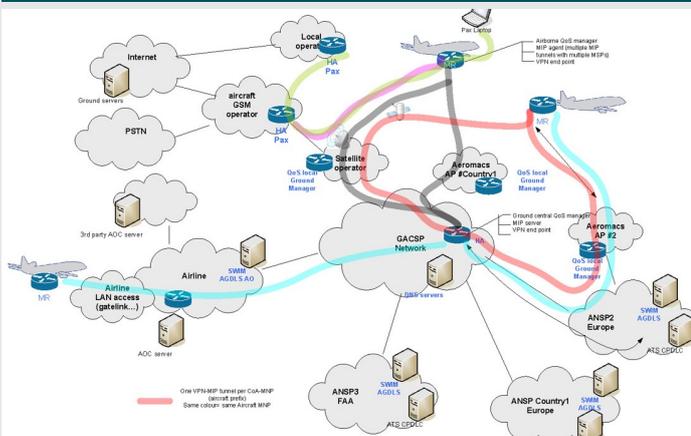
Her research materialised in over 100 papers published in scientific journals and international conferences, one co-authored book, and contributions to 5 book chapters.

### Current research interests:

- Integrated mobile
- Wireless and satellite communication networks
- Vehicular communications networks including aircrafts and trains.

### Active projects:

1. EU H2020 SESAR JU project SINAPSE – A public-private partnership under the SESAR 2020 to define and develop innovative technologies to increase air traffic management performance and intelligence.
2. EU H2020 Cleansky2 JU project COMET – A project funded by the largest EU research programme developing innovative, cutting-edge technology aimed at reducing the environmental impact of future aircrafts.
3. ESA SatNex V – A project funded by the European Space Agency in the framework of Future Preparations ARTES programme and Technical Directorate Network of Centers



# Research and Knowledge Transfer

## Submitted Projects:

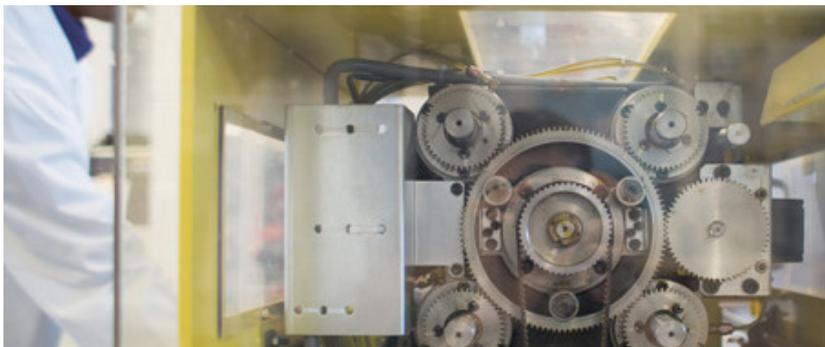
- NextGen Drive, Innovate UK, Arrival, Felician Campean
- Microwave Enhanced Multilayer Delamination and Recovery - MEMDaR, NERC, Tim Gough
- Recycling of difficult-to-recycle polymers, NERC, Adrian Kelly
- Thermal Performance of Ground Struts Coated with Cork Insulation Layer, VP PLC, Mostafa Mohamed
- KTP A & Y Law Ltd, Dhaval Thakker
- Rearranging Environments for Social Distancing using Design Simulations, Horizon 2020, Hassan Ugail



## KTP with 120-year-old Leeds firm shortlisted in the Finalist for the Engineering Excellence Category

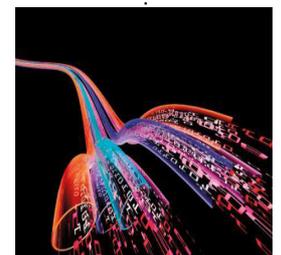
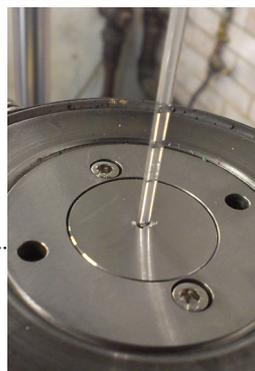
Dr Savas Konur and Dr Yang Lan, both worked on the KTP with Rakusens Ltd. The KTP project, rated outstanding by Innovate UK, transformed production knowledge into a smart manufacturing process using artificial intelligence, machine learning, big data, cloud computing and 'industrial internet of things' to produce consistent quality food products.

More information here: <https://www.bradford.ac.uk/news/archive/2020/university-shortlisted-for-national-knowledge-transfer-partnership-awards.php>



## Open calls for funding:

- EPSRC Pre-announcement for Responsive Manufacturing Outline Call, closing date: 11 August 2020 at 16:00
- EPSRC Adventurous Manufacturing call, closing date: 13 August 2020 at 16:00
- EPSRC Precision Manufacturing Outline Call, closing date: 03 September 2020 at 16:00
- International Centre-to-Centre Research Collaborations, closing date: 08 September 2020 at 16:00



# Staff and Students' news

## Prof Rami Qahwaji's Successful Application to NHSx

Rami Qahwaji led a new NHSx successful proposal to identify the visual signatures associated with COVID-19 infections, as seen in chest X-Ray, CT and MRI scans, using advanced AI and imaging technologies. This project provides the investigators with unique access to the newly released NHSx National COVID-19 Chest Imaging Database (NCCID), which is a centralised UK database containing X-Ray, CT and MRI images from hospital patients across the country. Among the project collaborators are the NHS Strategy Unit, and the Deputy Medical Director at York Hospitals. The Bradford team consists also of Amr Abdullatif, Raed Abd-Alhameed, Fun Hu, Mansour Youseffi, Irfan Mehmood, Muhammad Faisal (FHS) and Mohamed Mohammed (FHS).



## FEI Seminar Series:

24 June 2020: Dr Paul Spencer (AME R&KT Centre) gave a talk on 'Finite Element simulations of solid polymers'

1 July 2020: Dr Nejat Rahmanian has kindly invited Prof. Rahmat Sotudeh-Gharebagh to deliver a webinar on : 'Soft Skills for Engineers and Engineering Students'

We have continued using the weekly Wednesday, 12 noon timeslot to discuss with PGR students their questions, worries/anxieties, and other information generally.



## Dr Geev Mokryani promoted to Senior Lecturer in Electrical Power systems

Geev is the Programme Leader for MSc Smart Grids and Energy Systems at the Faculty of Engineering and Informatics.

His research interests focus on optimisation, planning, operation, and control of distribution networks with high penetration of renewable energy sources and energy storage and risk and resilience analysis of future smart grids.

He has been involved in several smart grids and energy systems projects including SITARA and PV2025 through national funding bodies and industry.

More about Geev here: [www.bradford.ac.uk/staff/gmokryani](http://www.bradford.ac.uk/staff/gmokryani)



# Staff and Students' news

## New staff

Dr Cuong Dao was appointed as Lecturer in Mechanical and Energy System.

Dr Cuong Dao's research focuses on reliability modelling and maintenance management of mechanical engineering and renewable energy systems. He has rich experience in working with industry and bringing academic research to practice through his current and previous research projects as well as his past role as an engineer. He has been involved in four major interdisciplinary research projects in offshore wind farm operation and maintenance, asset lifecycle management, reliability modelling, and maintenance optimisation. He has papers published in Reliability Engineering & System Safety, IEEE Transactions on Reliability, Wind Energy, Journal of Infrastructure Systems, and Journal of Transportation Engineering and is a reviewer for several journals & academic conferences in the field of Mechanical, Reliability, Maintenance, and Renewable Energy Engineering.

More about Cuong here: [www.bradford.ac.uk/staff/dcdao](http://www.bradford.ac.uk/staff/dcdao)

Dr. Ugonna Anuebunwa and Mr. Mohammad Ahmad Al-Ja'afreh were appointed as Research Project Officers for the Innovate UK Pi-CREST project and will be working with Dr Geev Mokryani.



## Early Career Research Seminar (ECRF):

Dr Brian Thomson introduced us to Shape Memory Polymers With Applicability In Orthopaedic Devices

The group discussed about Time Management after a presentation on the topic by Dr Cristina Tuinea-Bobe

Our next meeting is on 19 August 2020, 12 noon.



# Staff and Students' news

## Dr Mai Elshahaly talks about how the University of Bradford are using data visualisation as a tool to understand and communicate health challenges and risks during the Covid19 pandemic



I was having a discussion with my, by now, politically active teen daughter when she quickly pulled up a bar chart on her phone to make a point. “Do you see where the issue is?” she asked firmly.

At fifteen years old, she and young people like her are using visualisation to understand and communicate information in ways that were never possible before. As today’s news stories are being told by data to decision makers and the public, the demand for elaborate yet intuitive visual encoding of information is booming. The University of Bradford acknowledges this demand and has funded two internal short-term projects to help us address some of it.

Our first project focuses on understanding the risk factors of COVID-19, using a combination of machine learning and web-enabled visualisation. Professor Daniel Neagu, Professor of Computing, Faculty of Engineering and Informatics, is collaborating on this project and we are together exploring how classifiers like random forests can help inform the visualisation of the disease’s critical risk predictors. Our aim is to offer an entry point for exploratory analysis that allows users to formulate and test hypotheses effectively and to share their findings with a wider community of researchers and stakeholders.

Our second project is in response to an increased demand for service quality monitoring dashboards in NHS hospitals. This work is led by Professor Rebecca Randell who also leads a NIHR-funded project called QualDash in which we developed and installed a dashboard generation engine in five hospitals in Leeds, Manchester, Stoke, Blackburn and Wakefield. As the COVID-19 situation worsened, we received a request from Professor Chris Gale at Leeds Teaching Hospitals to adapt our engine to support daily updated data, to allow for continuous monitoring of cardiology admissions. Professor Gale’s concern was based on data emerging from China that have shown that people with heart attacks were less likely to arrive in hospital and receive adequate care in a timely manner during the pandemic. We have, therefore, taken QualDash into a new development iteration in which we introduced new features to support a more seamless data upload and validation process. We anticipate releasing a version 3.0 of the software as a result of this iteration.

Dr Mai Elshahaly

In line with this current work, we have been tasked by Professor John Wright, who leads the Bradford Institute for Health Research and Wolfson Centre for Applied Health Research, to investigate the potential of adapting some of these tools, or developing new ones, to support the visual exploration of Connected Bradford data. Professor Wright explained that stakeholders in District Gold Command are seeking a data-driven decision process to mitigate the medium- and long-term impacts of the pandemic. We have, therefore, joined forces with BIHR collaborators and the QualDash team to conduct a series of interviews that are helping us analyse these requirements and design a plan of action to support District Gold’s quest.

More about Dr Mai Elshahaly here: [www.bradford.ac.uk/staff/melshahaly](http://www.bradford.ac.uk/staff/melshahaly)

